UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/749,660	12/28/2000	Manoj Khare	2207/9865	8718

			EXAMINER
23838	7590	10/06/2003	THAI, TUAN V

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WASHINGTON, DC 20005

ART UNIT	PAPER NUMBER
2186	

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>05 March 2002</u> .

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-29</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-29</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>13 April 2001</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>5 and 7</u> .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

Part III   DETAILED ACTION

Specification

1.   Claims 1-29 are presented for examination.

2.   Applicant is reminded of the duty to fully disclose

information under 37 CFR 1.56.

3.   The title of the invention is not descriptive. A new title

is required that is clearly indicative of the invention to

which the claims are directed.

Claim Objections

4.   Claim 2 is being objected to for the following reasons:

Claim 2 should be changed to be dependent on claim 1 instead

of claim 2 as being claimed. Correction is required.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs

of 35 U.S.C. § 102 that form the basis for the rejections under

this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published
under section 122(b), by another filed in the United States before the

invention by the applicant for patent or (2) a patent granted on an
application for patent by another filed in the United States before the
invention by the applicant for patent, except that an international
application filed under the treaty defined in section 351(a) shall have the
effects for purposes of this subsection of an application filed in the
United States only if the international application designated the United
States and was published under Article 21(2) of such treaty in the English
language.

6.   Claims 1-29 are rejected under 35 U.S.C. 102(e) as being

anticipated by Baumngartner et al. (USPN: 6,275,907); hereinafter

Baumngartner;

As per claim 1, Baumngartner discloses the invention as

claimed including a method for reducing memory latency in a

multi-node architecture [6] comprises receiving a speculative

memory read request at a home node before results of a cache

coherence protocol (MESI) are determined (e.g. see column 4,

lines 29 et seq.; lines 63-67; figure 3A, block 90; and column 9,

lines 18 et seq.); initiating a read to memory to complete the

speculative memory read request (e.g. see column 9, lines 34 et

seq.);

As per claim 2, buffering results of the read to memory is

equivalent taught as once the requested cache line is supplied to

cache hierarchy of the processor, the requested cache line is

loaded into a register/buffer within processor core 12 (e.g. see

column 9, lines 40-43);

As per claims 3 and 4, dropping the results of the read to

memory on a buffer full condition or if a cancel command is

received is equivalently taught as canceling a load-reserve instruction if cancel command is received, then reissue the read to complete memory request; also noted the Rerun of the read request and retry of the AStaIn vote (e.g. see column 8, lines 21 et seq.; column 9, lines 52 et seq.; column 10, lines 7-8, also lines 61 et seq.);

As per claim 5, Baumgartner discloses forwarding results of the second read to memory requester (e.g. column 12, lines 54 et seq.);

As per claim 6, Baumgartner further discloses that if a confirm command is received before results of the speculative memory read which issued by the requesting node are dropped, forwarding the results of the read to a requester as being equivalent to if a determination is made at block 192 that a reservation cancelling event has not been detected, the process proceeds directly to block 200 (e.g. see column 13, lines 8 et seq.);

As per claim 7, wherein the speculative memory read request is issued by the requesting node (e.g. see column 8, lines 2-4);

As per claim 8, Baumgartner discloses receiving the results of the read at the coherence agent and forwarding the results of the read to the requesting node memory (e.g. see column 10, lines 35-38);

As per claim 9, Baumngartner discloses the invention as claimed including a method for reducing memory latency in a multi-node architecture [6] comprises issuing a speculative memory read request to a home node before results of a cache coherence protocol (MESI) are determined (e.g. see column 4, lines 29 et seq.; lines 63-67; figure 3A, block 90; and column 9, lines 18 et seq.); initiating the cache coherency protocol (e.g. see column 7, lines 16 et seq.);

As per claim 10; updating a memory status relating to the results in a table after the results of the cache coherence protocol (e.g. see column 5, lines 59 et seq.);

As per claim 11; initiating a status look-up to determine the caching status of the requested memory (e.g. see column 7, lines 21 et seq.);

As per claim 12, Baumgartner discloses issuing a command to the home node if the caching status is determined to be in an invalid state or shared state (e.g. see column 4, lines 29 et seq.);

As per claim 13, snooping a node with the exclusive copy of the requested memory cache (e.g. see column 8, lines 33 et seq.; column 11, lines 30 et seq.);

As per claims 14 and 15, determining whether the exclusive copy of the requested memory is clean or dirty, and issuing a

confirm command for clean requested memory (e.g. see column 11,

lines 33 et seq.; also see table VI);

As per claim 16, the further limitation of issuing a cancel

command to the home node if the exclusive copy of the requested

memory is dirty (being modified) is embedded in the system of

Baumgartner and being taught to the extent that it is being

claimed, for example, Baumgartner clearly discloses the cache

line which is remotely held can make a transition from Exclusive

to Modified (dirty), in addition with the implementation of the

MESI protocol, the cancellation of the requested command should

be existed in order to guarantee the coherency within the system;

As per claim 17, Baumgartner discloses receiving a snoop

result which includes a copy of the requested memory and updating

a memory status relating to the requested memory in a table (e.g.

column 7, lines 21 et seq.; table VI);

As per claim 18, Baumgartner discloses receiving the

requested memory and forwarding the requested memory to a

requesting node (e.g. see column 10, lines 35-38);

As per claims 19-23 and 24-29, they encompass the same scope

of invention as to that of claims 1-8 and 9-18 except they are

drafted as apparatus format rather than method format, the claims

are therefore rejected for the same reason as being set forth

above; noting that Baumgartner discloses processor 12, system

memory 18 and node controller 20 as being illustrated in figure

1, column 3, lines 10 et seq.);

Conclusion

7.   The prior art made of record and not relied upon is

considered pertinent to applicant's disclosure.

8.   Any inquiry concerning this communication or earlier

communications from the examiner should be directed to Tuan V.

Thai whose telephone number is 703-305-3842.

    The examiner can normally be reached on Monday-Thursday from

6:30 AM to 4:00 PM. The examiner can also be reached on

alternate Fridays. The fax phone number for the organization

where this application or proceeding is assigned is (703)872-

9306.

    Any inquiry of a general nature or relating to the status of

this application or proceeding should be directed to the Group

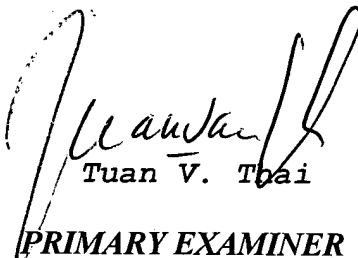receptionist whose telephone number is (703) 305-9600.

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TVT

September 27, 2003

Tuan V. Thai

PRIMARY EXAMINER

GROUP 2180